

## Dengue: Key Health Messages

### Dengue (pronounced den' gee) virus

- Dengue is a serious, sometimes fatal viral illness spread by *Aedes* mosquitoes.
- Dengue is a disease caused by any one of four closely related dengue viruses (DENV 1, DENV 2, DENV 3, or DENV 4).
- The mosquitoes that spread dengue bite during the day, especially during early morning and late afternoon hours.

### Where is dengue common?

- More than one-third of the world's population lives in areas at risk. An estimated 390 million people are infected each year globally. Dengue is found in at least 100 or more tropical and sub-tropical countries of the world, including countries in Africa, Asia, the Pacific, the Americas, and the Caribbean. For specific information on where dengue is common: <http://www.healthmap.org/dengue/index.php>

### Dengue in Puerto Rico

- Dengue is common in Puerto Rico and the number of reported cases remains very high.
- The Puerto Rico Department of Health and the Centers for Disease Control and Prevention's Dengue Branch, located in San Juan, publish a weekly surveillance report: <http://www.cdc.gov/dengue/about/inPuerto.html>
- Since 1990, there have been four large epidemics of dengue. In 2013, over 13,000 suspected cases have been reported.

### Symptoms

- Dengue virus infections can range from having no symptoms, to causing mild or severe disease. Death can rarely occur in people who develop severe dengue symptoms.
- Mild symptoms of dengue begin with a high fever severe headache and pain behind the eyes, muscle and joint pain, nausea, vomiting, rash and any abnormal bleeding.
- Severe symptoms of dengue begin with the development of warning signs, generally when the fever is going away, 3-7 days after symptoms begin. Severe dengue is an emergency and the patient should be brought to the emergency room for immediate care. Dengue warning signs include: severe abdominal pain or persistent vomiting, red spots or patches on the skin, bleeding from the nose or gums, vomiting blood or blood in stools, drowsiness or irritability, pale, cold or clammy skin or difficulty breathing.

### Diagnosis

- Clinical diagnosis – is made by the health care professional based on a constellation of signs, symptoms and clinical laboratory findings (e.g., CBC, platelet count). Other diseases (e.g., leptospirosis, influenza, malaria) can have the same clinical presentation as dengue.
- Laboratory diagnosis – is specific for dengue and is made through testing of a blood sample.

## Treatment

- There is neither a vaccine to prevent nor medication to treat dengue.
- Mild cases of dengue may be treated at home; rest, drink plenty of fluids to prevent dehydration.
- Severe cases of dengue require treatment in a hospital. It is common to need intravenous (IV) fluid to treat dehydration.

## Prevention

- The most effective way to prevent dengue is to prevent mosquito bites and control mosquito populations.
- Just a few infected mosquitoes can cause large outbreaks of disease in the community. Effective mosquito control requires community support.
- Insect Repellents: use insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus or para-methane diol. Always follow label instructions.
- Mosquito proof your home, inside and out: Install or fix screens on windows and doors; do not prop open doors, allowing mosquitoes to fly in. If you have air-conditioning, use it.
- Drain and dump standing water found in containers inside and around the house: pet dishes, flower pots, vases, buckets, tires, cans.
- If containers cannot be drained or dumped out, cover them so that mosquitoes cannot get inside to lay eggs.
- Weekly, wash out containers with a brush or sponge to remove mosquito eggs.

## What are CDC and the Puerto Rico Department of Health (PRDH) doing to control dengue?

### CDC:

- **Laboratory Testing**: CDC and the PRDH process over 7,000 dengue tests in non-epidemic years. CDC serves as a dengue reference laboratory for difficult to diagnose cases.
- **Surveillance**: CDC designed and is implementing [sentinel enhanced dengue surveillance system \(SEDSS\) at 3 sites -Carolina, Ponce & Guayama](#). CDC also investigates all reported fatal cases of dengue.
- **Education**: CDC developed an online, 4 Continuing Medical Education credit Dengue Clinical Case Management Course for physicians. This course will debut in late 2013. It is based on a very successful course implemented in Puerto Rico since 2009. In Puerto Rico, all licensed physicians are required to take this course. CDC produces health education materials for all audiences, including the public, health care providers and school children. CDC has trained Puerto Rican “master trainers” who conduct regular dengue physician education seminars.
- **Entomology**: CDC provides full spectrum entomological technical assistance to Puerto Rico and around the world. CDC has developed a novel mosquito trap that is being pilot tested in Puerto Rico.

### Puerto Rico Department of Health

- **Surveillance**: PRDH runs the Passive Dengue Surveillance System, PDSS. PRDH updates and publishes the PDSS weekly surveillance report.
- **Education**: PRDH is available to provide dengue educational materials, training and outreach to the community, schools and organizations.

- **Laboratory testing:** performs dengue diagnostic testing on specimens sent by health care professionals in Puerto Rico

**For more information on dengue:** [www.cdc.gov/dengue](http://www.cdc.gov/dengue) or <http://www.salud.gov.pr/pages/default.aspx/>

**Questions?** Contact the Puerto Rico Department of Health or CDC's Dengue Branch

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